# **IST 412: Complex Software Systems**

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**Topic: User Study Design**

**Pennsylvania State University: World Campus**

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**Domain Analysis:**

Financial technologies have a large amount of responsibility and overall pressure. They must comply with the law and regulations, stay on track of their high expectations within the business and monetary sector of the economy, and, probably most importantly, create a quality product for their customers. This not only includes the services offered by the financial company, but also the way they can get their services out into the world. Now more than ever, software is the best way for these companies to conduct business and generate large amount of revenue each year.

One of the key features of a good financial software product that complies with the client’s needs and priorities is automation and end-to-end procedures. The goal is to deliver a user-friendly product that will allow customers to interact with loan options, view interest rates, make payments online from their bank accounts, make enquiries, etc. Technical specs will also include reviewing loan options and accepting the terms and conditions. The goal for this type of delivery is to streamline all the basic and well established administrative and financial processes from beginning to end. The web-based software will be orchestrated to abide by government regulations while making the loan process as easy as possible for the desired user. The system should be adapted to the user experience and allow for easy payments, statements, active loans, and other areas the customer will explore within the software. This automation process will be implemented with the customer and other stakeholders’ best interest in mind.

The next thing to consider for the client is the support for the system. There should be a big focus on the support domain with the broad spectrum of the product. Customers and even employees should be able to have an outlet for when they have trouble navigating the system. The customer can reach out the support, and support can have communication the development team. Support also falls in line with a system that supports different cultural interactions. The system may need support multiple currencies and conversions, languages, country-specific laws and guidelines, and multi-national transactions.

In a financial environment that is very dynamic and volatile, there is also an essential need for systems that can withstand such dynamicity, such as the fluctuation in interest rates or the constantly changing regulations that govern banking practices and products, etc. The financial software and its processes will also need to include some accountability for the stakeholder/user inputs about how to maneuver new ideas into future releases. The focus is to provide a product that always follows the guidelines of the stakeholders and users, in a constantly changing environment. In general, all discussed requirements and implementation, along with future changes, need to have the stakeholders’ and users’ needs in mind. Afterall, it is their desired product that they are requesting from us. They are paying for the software to fit to their needs.

Finally, a good software product for the financial group, mFinance in this case, will need some type of secure system of reporting and analysis. The ability to rapidly generate thorough, consistent, and highly accurate balance sheets, profit and loss statements, and budget allocations is an essential aspect to the financial software. There needs to be secure access to prevent confidential data from reaching the wrong people. There could also be some integration with other business applications for collaboration and quick secure data sharing. This reporting will allow financial professionals to create reports to keep track of their progress client relationships.

**Eliciting Requirements**

**Sabahat Aziz**

**Eliciting Method:** **Forms of Communication**

Eliciting requirements are a set of activities created by designers, stakeholders, and customers, that collect information about the design, functions, and properties of a system. These requirements are then implemented into the design of a project. Gathering all that data, analyzing and discovering new ideas regarding the system, and understanding the concept of the program is a very crucial part of a project development process. It’s crucial because this first step leads into developing a system that is beneficial for all users and ensures that it’s full of great quality and content, as in the users will be satisfied. The eliciting method I chose to discuss would be forms of communication.

Forms of communication are extremely useful especially concerning employees. One-way designers can have a form of communication is by hosting meetings. In these meetings we can discuss and go into detail about the complexity of the project. These meetings are vital to the success of the system. Effective communication gives the creators an idea of what the project is missing, what it can improve on, how and what the program can be used for, the benefits of it, along with the technical and functional properties. Gathering recommendations and having this form of interaction not only creates a relationship with the designers and the users, but it also helps the creators understand what the users really need, therefore enhancing the project.

**Targeting Group:** **Employees**

A targeted audience is another essential element that plays a role in the success of a system program. A target audience is a set group of people that are going to be your potential customers. It is imperative to gather feedback from many target group sources such as new or old users, stakeholders themselves, managers and more. The group I chose is employees.

Employees already have set knowledge about the company their working for, products, and technologies. Unlike a specific target audience, like a group of 20-year-old males, the major reason for having employees be one of our main focus groups is that they’re diverse. Diverse in the sense that employees are a diverse range of people. They’re different culturally, have different levels of education and knowledge, different skills, and different opinions and inputs. Once they use the system, they will be able to tell what works best for them and what doesn’t. They can relate any of their criteria back to other users who might have the same criticism. With these responses we can create the system mFinance for Callisto Finance. Employees who already work for Callisto Finance will have an understanding of what other users will need on the design we create. They can judge the attributes and we can update our program based off of that.

With appropriate candidates, effective communication, and user participation our software will be able to benefit everyone. We will be able to consider everyone’s needs and go accordingly to that.

**Requirement Materials: Field Observations and Surveys**

On the other hand, doing research, conducting interviews, and brainstorming ideas are all productive techniques of gathering more data to understand the concept better. One approach I want to focus more on would be field observations. Field observations are a way to see how people will actually use the system in the real world. We will get to see how the mFinance app comes in handy when people are curious about their loans, need information about finance, need to make payments, have enquiries and much more. With this method, we get a sense of how it will be used in someone’s everyday life.

Another systematic data collection approach I want to emphasize on would be surveys. It’s proven that users are more likely to be open and honest in a survey in comparison to something like an interview. We can take their opinions from a survey and make key decisions regarding our system. Conducting surveys gives us insight on both a more sampled targeted focus group as well as what a larger population would need in terms of the quality of the design. With both these research methods, we can easily create solutions to any problem our system has.

[**Albana Beqo**](https://psu.instructure.com/groups/596909/users/6846588)

**External Vendors**

**Eliciting Method: Task and Process Analysis, Background research, Interviews**

In order to elicit requirements for the external vendor stakeholder we have decided to use a combination of eliciting methods. We believe that viewing things from different angles can enable us to draw upon different perspectives and therefore get a more complete visual of the system requirements needed to build the loan application system successfully.

A task and process analysis is essential in order to fully understand the loan process end-to-end and be able to pinpoint how the system will communicate with other systems via published APIs, or how external vendor input/output may be necessary in order for the loan process to flow. The data collection and data flow can be easily tracked through this analysis. The information needed can be found in the current business models, and business processes, process manuals, or through the conduction of user observations.

Background research is also an appropriate eliciting method here as well, because drawing on best practices that are already successful outside of the company can be advantageous in many ways. Technology has really advanced a lot in the past decades and conducting a research to find out what works best and what does not, can give your ideas a new perspectives, but it can also help you to avoid making mistakes that have already been made.

Finally interviews with vendors such as brokerage companies could be beneficial in taking in their point of view and their perspective. However, this method is not appropriate for certain vendors, such as banks or financial institutions.

**Targeting Group: Other Banks and Financial Institutions, Brokerage Companies, Credit Rating Institutions**

The targeting group discussed here are the external vendors upon which the company relies to conduct its business. External vendors are essential to Callisto Finance. No banking or financial institution would be able to conduct business on their own, without the ability to interconnect and cooperate with the myriad of other financial and banking institutions which are essential and an integral part of any financial institution. The online system mFinance that facilitates the loan application, approval and disbursement process for Callisto Finance, is no exception from the rest of the financial institutions. In order to properly function mFinance must rely on external vendors. For the most part, the external vendors are other financial institutions, which are mostly contracted vendors of the Callisto Finance. Such institutions could be other banks, credit rating vendors such as Experian, or risk solutions companies such as LexisNexis. However, there may also be other external vendors who could also be regular users of the system, such as contracted brokerage companies, or other lending financial institutions.

Developing a system that will securely and effectively enable the necessary communication with such vendors is essential for conducting business. Furthermore, building a system that communicates with such crucial vendors in a seamless, flawless and secure manner is even more important, and could even be used as a competitive vantage point for the company that invests in such a system.

**Requirement Materials: Field Observations, Use Case and User Stories, Questionnaires, Surveys, Process Manuals, Background Research**

There is a wide variety of materials that could be used to elicit external vendor requirements. The starting point could be the creation of use cases and user stories and the collection of internal, current data using questionnaires and surveys. After this initial data is collected, it could be compared to data retrieved from existing process manuals in combination with field observations in order to ensure that the current processes are in synch with the business requirements. And then the results of such comparison could also be placed against data gathered from conduction a background research. This could serve to conduct a thorough analysis of how things operate in paper versus in real life within the company, and then we could compare internal operations to external operations in order to achieve a broader perspective.

Throughout the entire process, the materials will be completed with the help of the system users, including customers, employees, SMEs and management.

[**Ryan Carey**](https://psu.instructure.com/groups/596909/users/6811603)

**Eliciting Method:** Contextual Interviews, simple interview, field observation, background research.

The best way to figure out what the government wants our project to do will be observing how an existing entity, like a bank, handles the regulatory requirements imposed on them. Then, we can satisfy the same requirements virtually. We also need to do some research to determine whether performing the requested services through an app will incur any separate regulations.

**Targeting Group:** Government

The government is inherently involved in certain transactions as a result of the National Bank Act. There are restrictions on the types of investments a bank can make, as well as on the total amount they can lend to any one person or entity. The *Electronic Fund Transfer Act* of 1978 may have some bearing on our project as well. These things need to be considered to avoid breaking federal law.

**Requirement Materials:** Notebook, Camcorder, Internet

A good method of figuring out how to handle government regulations is to perform contextual interviews with companies that already do so successfully. We will already be doing that as another group member has said, so we will put some focus on how the bank deals with the regulations imposed by the government at the same time. Finally, it is always better to call the government than to have the government call you, so we will also need to set up a meeting or a call with someone from whichever federal regulatory agency Callisto Finance falls under.

**Dave Blon**

**Eliciting Method: Focus Groups / Workshops**

The eliciting method to determine project requirements that I have chosen is the use of focus groups and organized workshops. The point of the focus group is to create an interactive session with the selected group of people. We want to essentially capitalize on the on the “synergy” of the group to create a great effect on the potential project. We need to prepare the group by selecting those who need to be a part of the group to come out with the best possible outcome for the stakeholders and the team operating on the project. There needs to be a structure of who will do what and any topics of interest that the selected people will go over. There needs to be organization of when, where, and how the focus group will take place as well. When the group takes place, there needs to be concrete understanding that everybody involved should share their opinions, ideas, and interact freely, or else the focus group could fail. In the end, there should be a report of what the group agreed on, what they disagreed on, and the key takeaways from the meeting.

We can also look at workshops to elicit some requirements. They are very similar to a focus group, so they can fall under one category with a few small differences. Again, we need to determine the where, what, and how the workshop will be conducted. Then we need to gather a selected number of stakeholders who can understand that everybody’s input is valued and not just a few dominant figures. A difference from conducting a workshop compared to a focus group is that in workshops we may conduct interviews before the session begins. This allows us to gather some preliminary information so that we can find a starting point and a desired direction of the meeting. Then in the end, just like the focus group, we can have a record of everything we went over including agreements, disagreements, and focal points we can really streamline in the project.

**Targeting Groups: Customers, Shareholders, Government**

There are a few different types of stakeholders that will need to be involved with this eliciting process for the project requirements. First, we need to consider the possible users of the software and how they feel the experience patterns should be implemented. This can mean possible GUI ideas, organization of the site so it’s easily maneuverable and easy to find specific options, and maybe even others things that the project team and shareholders may not have even thought about. They can point out possible ways support would help for any amount of identifiable reasons.

Then we can look at the actual shareholders who will be investing in the project and mFinance itself. They should be able to point out what they are looking for in the product that will bring them profit and good feedback from both internal and external users. They may have ideas to bring about connections to other similar companies and investors, as well as a system for investor interaction. These investors and shareholders alike will want to be assured that they can maximize profit with the smallest risk possible.

## Finally, we will need some input from policy specialists. We need to get a good idea of what the legal ramifications are for different aspects of the software. The U.S Federal Financial Institution Regulatory Agencies Group is a group that consist of other organizations that set the parameters and regulations of monetary industries. These include the Deposit Insurance Corporation (FDIC), the National Credit Union Administration (NCUA), the Office of the Comptroller of the Currency (OCC), the Office of Thrift Supervision (OTS), and the Board of Governors of the Federal Reserve System (FRB). The Financial Accounting Foundation makes it clear that The Group is a formal interagency body empowered to prescribe uniform principles, standards, and report forms for the federal examination of financial institutions by the FRB, FDIC, NCUA, OCC, and OTS and to make recommendations to promote uniformity in the supervision of financial institutions. These policy experts and possible government employees can lay out what is legal, what is illegal, what is optional, what is required, and other areas that are of interest to ensure the project abides by the law.

**Requirement Materials: Questionnaires, Surveys, Group Guides**

One way we will gather the information we need from these focus groups and workshops is by utilizing questionnaires. By using questionnaires in our groups, we can have everybody answer very general questions about the project at the beginning of the session. We will then collect those results and have somebody scope out the main ideas gathered from all the questions to have an interactive part of the session to go over those aspects and refine them into what the group thinks is essential. The surveys can be administered after the session has ended and everybody can then have a link or place to drop their responses. These surveys will have more specific questions about the session based off what was discussed throughout its time. Then a future session could take place to, once again, refine those ideas and begin work on the project. Finally, a group guide will be administered. There will be a structure to the focus groups and workshops that essentially follow a plan of introductions, background on where the initial project expectations are, individual time for discussion, and a review of the results of the questions administered. This should set a good idea of where people can expect to participate and engage in the project.